

Field trip forms

Plan

Review

Light - various demos

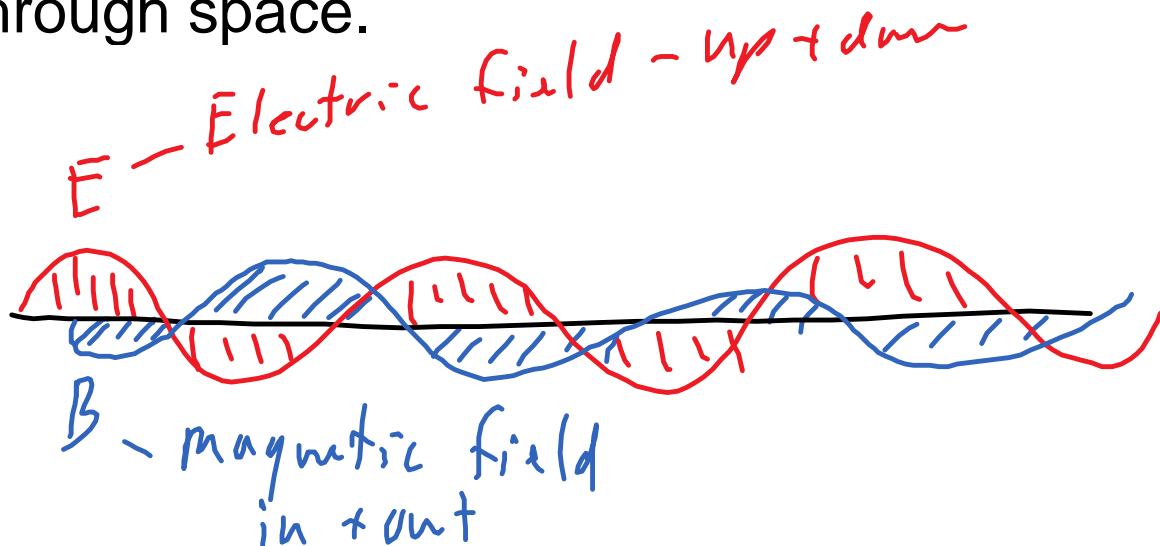
Lab prep

Light - Chapter 16.1 (skip rest of 16) Ch 17 - reflection and refraction

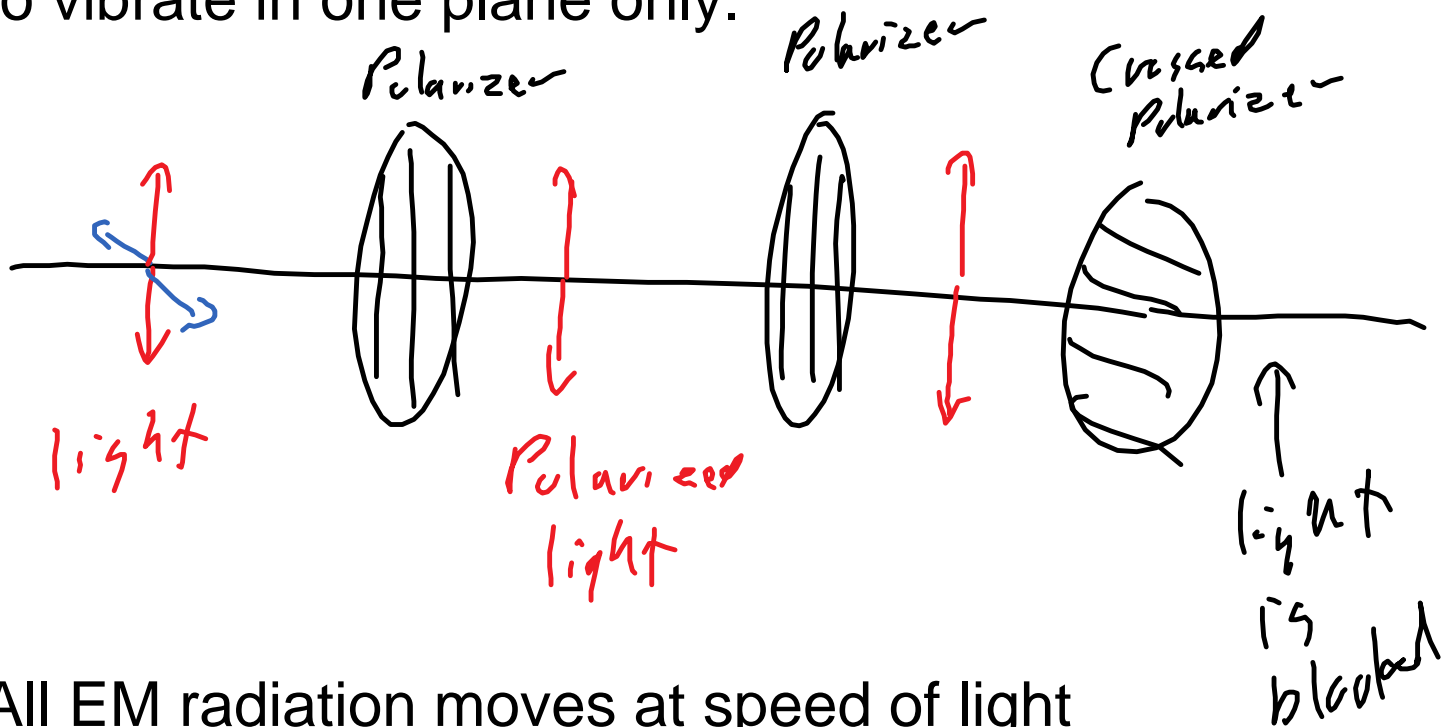
Light is electromagnetic radiation between 400 and 700 nm (that we can see).

Electromagnetic radiation is created when charged particles change energy states (quantum) give off a bundle of energy - a photon.

In classical theory - electric and magnetic fields go through space.



Polarization- light can be polarized - cause it to vibrate in one plane only.



All EM radiation moves at speed of light  
 $c = 3.0 \times 10^8 \text{ m/s}$

Eg. CBC FM is 105.7 on the dial  
 105.7 MHz is the frequency

What is the wavelength of that radio station?

$$c = \lambda f$$

$$\lambda = 3.0 \times 10^8 \text{ m/s} / 105.7 \times 10^6 \text{ Hz}$$

$$= 3/105.7 = 0.0284 = 2.8 \text{ m}$$

P 344 problems 1-6

Read the lab on p45 and 46 prepare the data tables:

Waves and Sound Review

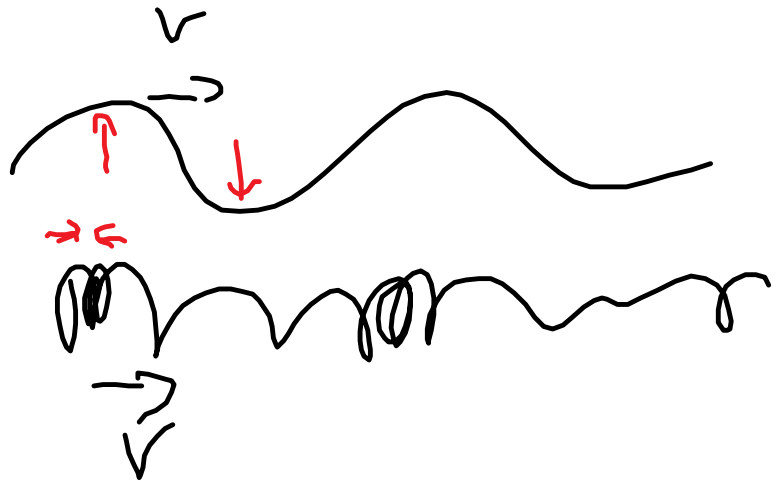
Wave: A disturbance in a medium that transmits energy.

Wavespeed is determined by medium - the thing the wave travels through.

$$v = \lambda f$$

Transvers waves

Longitudinal waves



Light- Chapters 16.1, electromagnetic radiation  
chapter 17 reflection and refraction

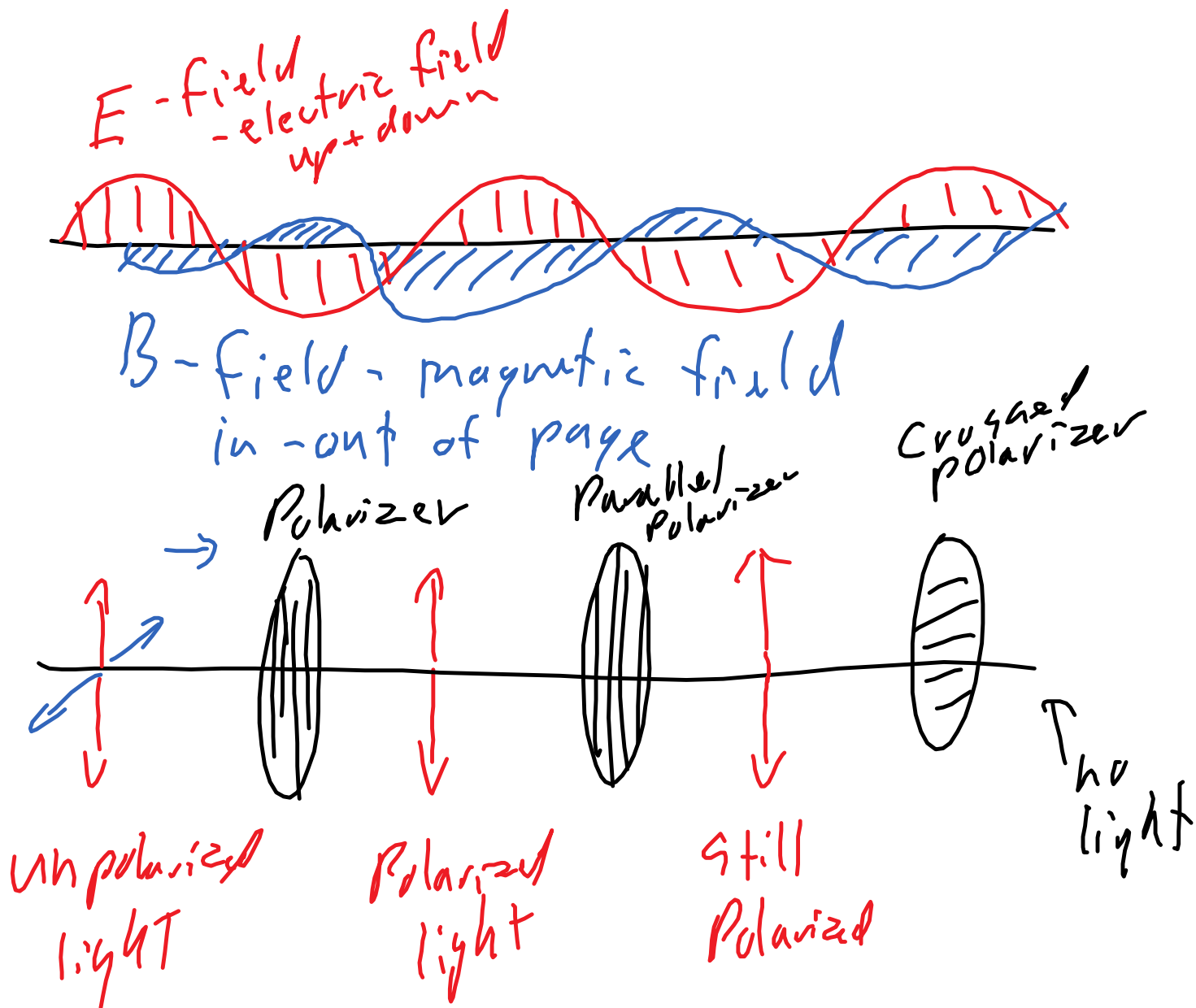
What is light?

Electromagnetic radiation we can see.  
Wavelengths - 400nm - 700nm

Electromagnetic radiation is  
Quantum - bundle of energy released (photon)  
when charged particles change energy states.  
Eg. When electrons drop orbitals.

Classical theory (pre-quantum):

## Waves of electric and magnetic fields.



Eg. The radio station 94.5 FM broadcasts at 94.5 MHz frequency radio wave.

What is the wavelength of that radio signal?

All electromagnetic radiation moves at the speed of light,  $c = 3.0 \times 10^8 \text{ m/s}$

$$c = \lambda f$$

$$\lambda = c/f = 3.0 \times 10^8 \text{m/s} / 94.5 \times 10^6 \text{ Hz}$$
$$= 3/94.5 = 0.0317$$

3.2m

P344 problems 1-6

Read lab manual p45 and 46 and set up  
data tables

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